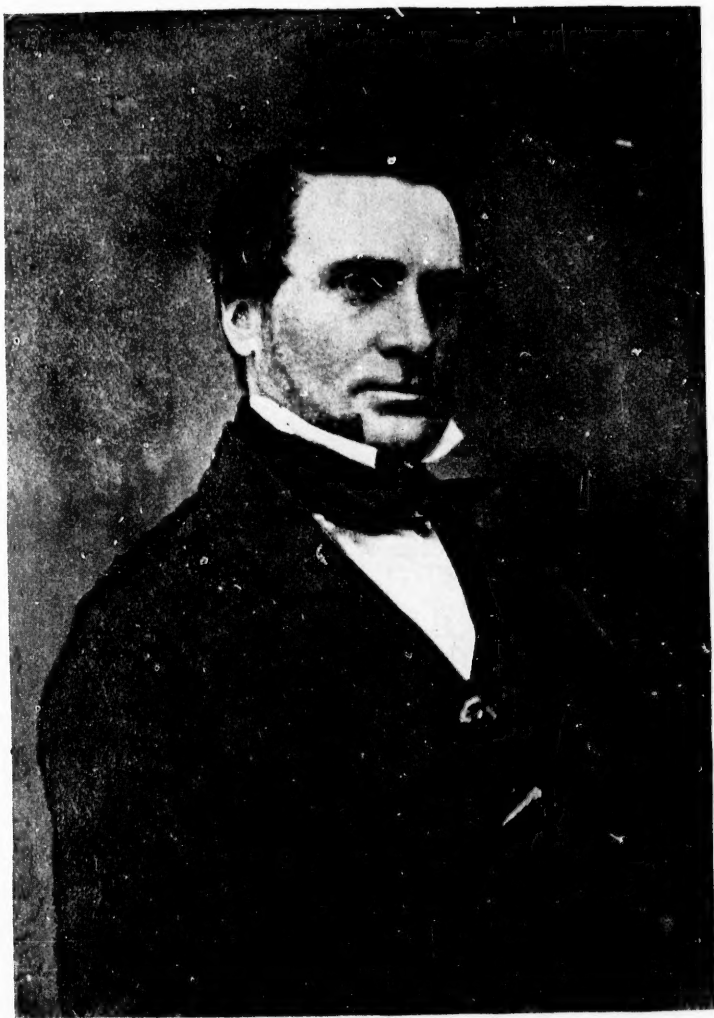




JAMES ROBB, M. D.

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First Professor of Chemistry and Natural History in King's
College, Fredericton.

A SKETCH OF HIS LIFE AND LABOURS.

BY L. W. BAILEY, LL. D.

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ARTICLE I.

DR. JAMES ROBB.

*First Professor of Chemistry and Natural History in King's College,
Fredericton—A Sketch of His Life and Labours,*

BY L. W. BAILEY, LL. D.

Read April 5, 1898.

In the course of the development of knowledge as regards the structure, history and natural resources of a country, it is usually the case that distinct steps of progress may be recognized, and that with each of such steps the life and labours of some one individual are prominently associated. The names of such men as Aristotle, Linnæus, Cuvier, Agassiz and Gray, make such steps of progress for the world at large, but even within the comparatively narrow limits of a single state or community a like process of development by successive, well marked stages is usually recognizable, and New Brunswick is no exception.

The first period in all such cases is usually that in which some one individual, as a result either of a more intense sympathy with nature or circumstances especially favorable for her study, devotes his whole energy to such work, and thus, by gathering and comparing the isolated and disconnected observations of many observers, begins to give to the latter a definite direction and definite methods. To us who have to labour in fields already pre-occupied by so many workers, and where the discovery of even one new fact or species is a rare occurrence, in

some departments indeed well-nigh an impossibility, a glance backward into the territories investigated by the early pioneers cannot but awaken a feeling of envy. On whichever side they turned something entirely novel was almost sure to meet their gaze. They had only to stretch out their hands and a veritable Klondyke of rich rewards awaited their grasp. No wonder that their imaginations were aroused to the highest pitch, and that conclusions and anticipations should be indulged in, which would require time and the crucible of criticism, and more exact observation to reduce to their proper value. In New Brunswick the period of pioneer exploration, and of enthusiastic but not always well justified prophecy, is identified with the name of Dr. Abraham Gesner, a sketch of whose life and labours has been published by the Society in its No. XV. Bulletin. That of the beginning of more exact observation and of critical analysis is similarly associated with the subject of the present sketch, Dr. James Robb.

Dr. Robb was born in the city of Stirling, Scotland, in the year 1815. Of his early life and education I have been unable to obtain any particulars, but, from letters written at the time, I find that he entered upon a course of medical study in Edinburgh University in the year 1831. He could hardly have ever entered seriously upon the practice of his profession, for in August of the year 1835 we find him travelling, while still a student, on the continent of Europe, and in September, 1837, he had already come to New Brunswick to accept the position of Lecturer in Chemistry and Natural History in King's College (now the University of New Brunswick), in which as Professor he continued to work until the time of his death, in 1861.

It is very evident that, even at the time of his European journey, which lasted for several months, he had already acquired a fondness for scientific, as distinguished from merely medical or professional, work, for he himself says, in writing to his mother, that the trip "was more for science than for pleasure," and resulted in the "collection of vast numbers of plants and shells and minerals." He must also have already gained for himself an enviable reputation as a naturalist, for he was accompanied by Dr. Van Beneden, already well known in the scientific world, and carried with him letters to many distinguished savants, making, as he says, the entire journey a "*voyage d'agrément*." Switzerland would seem to have had special attractions for him, though Nice, Milan, Genoa and Sardinia were also visited. The journey was made *on foot*, and in the passage of the Juras was not unattended with danger, the party being on one occasion storm-bound for three days in

a hut on the Auberge, from which they only escaped with difficulty, and where, to use his own words, "had they been much longer confined, they would have had to eat each other, like the Kilkenny cats, because there was nothing else to eat." He grows quite enthusiastic over their reception at the University of Pavia, where, despite their clothing, much the worse for travel, "the Professors of that time-honored seat of learning vied with each other in attentions and affability, one giving us objects of natural history, another presenting us with his works, and a third giving us iced sherbets and chocolate." He would never, he says, "think of his visit to Pavia but with feelings of the highest gratification." He adds that not at Pavia only, but throughout the journey, every moment was not only pleasurable, but of inestimable value to him. He was constantly in an atmosphere of science, and as the collections then made were undoubtedly those which subsequently became the nucleus of the cabinet now in the University in Fredericton, the writer of this notice, to whom these facts have only recently become known, can now the more readily understand, as he has always been surprised at, their extent and value.

The special circumstances which led to Dr. Robb's coming to New Brunswick are not definitely known; but as about the same time at least one other Professor from Scotland came to the Provinces for a similar purpose, it is probable that enquiries or advertisements had been instituted there with a view to the obtaining of properly qualified instructors. However this may have been, it is certain that Dr. Robb had not long been here before his influence began to be felt in the community. Accustomed to cultured society, fond of music, well read in the literature of the day, and, though not practising medicine, recognized universally as one thoroughly competent to advise, and, in the case of the poor, ever ready to give advice without compensation, he could not fail to be an acquisition to any community, and especially to such a one as then existed in Fredericton. Proofs of the estimation in which he was held are not wanting. Old residents of the city, and among all classes, speak of him even now in terms of the highest regard. His opinion was sought upon many subjects outside the line of his ordinary professional work. He was the first President and the most active spirit in the Fredericton Athenæum, a society or club for the promotion of literary and scientific research; he was nominated, in 1849, and chosen a member of the first Council of his adopted city, and again in 1850, in this latter case declining to serve that he might be the more free to give his attention to what he conceived to be a

still more important duty—the promotion of the agricultural interests of the Province. He enjoyed in an eminent degree the confidence of the then Lieutenant-Governor of New Brunswick, Sir Wm. Colebrook, as also that of the Bishop, the Chief Justice, the Master of the Rolls, and the other chief officials of the colony. As a teacher he was loved as well as respected by his pupils, seeking always for accuracy and clearness of statement rather than for a show of words, and endeavoring, as far as his very isolated position and remoteness from books and fellow-laborers would allow, to keep himself acquainted with the latest results of scientific thought and experiment. In December, 1840, he married Miss Ellen Coster, daughter of the Archdeacon of New Brunswick, and from that time his residence in the College building was a centre from which he continued to influence for good a constantly widening circle of individuals and of interests.

We, as naturalists, are chiefly concerned with his scientific labours. As might be expected, the natural products of a country quite new to him were quick to attract his attention, and the dates attached to specimens in the college herbarium show how soon after his arrival he entered upon the study of the botany of the Province. Practically he was our first botanist, for though others had made a few scattered observations on the occurrence of particular species, he seems to have been the first to attempt anything like a systematic collection. This collection is now in the museum of the University of New Brunswick, and embraces several hundred species, some of them forms of very rare occurrence, and some species re-discovered long afterwards by other observers. It was, of course, arranged on the old Linnæan system, but both in its extent and in the accuracy of its determinations shows clearly the labour expended upon its preparation. It is to be regretted that in this, as in so many other instances, the results of his work were never printed, so that little besides the collections which he made remains to indicate the extent of his services. He must, however, have maintained correspondence and exchanged specimens with naturalists abroad, as along with his own collection are many specimens sent from the herbaria of Messrs. Hooker and Balfour. He must also have continued to enjoy an enviable reputation among the botanists of the motherland, as his letters indicate the interesting fact of his having been suggested as a possible successor to Sir W. Hooker in the botanical chair in Glasgow, a position which, however, he says that he could not, in view of his engagements here, honourably accept.

A study of the wild plants of the Province was accompanied by an interest in the cultivated forms and in the conditions of their production. In April, 1850, having refused to be elected to the Fredericton City Council, he took hold of a Provincial Society for Encouragement of Agriculture, which, he says, "gave him more to do than the Council." He was elected its president, and soon after wrote a paper on the subject of Manures, which, with others, was afterwards printed, though no copies, so far as known to the writer, are now extant. Practically, he became Secretary of Agriculture for the Province, an office not actually established until a much later period, retaining the position until his death, and in that capacity visiting many parts of the Province, giving frequent lectures on agricultural subjects, and correlating the statistical returns submitted to him by his many correspondents. I have before me his lecture, "On Agricultural Progress in New Brunswick," and find it to be a model of terse statement, extended observation, careful criticism of existing methods, and sound judgment in the direction of possible improvement. The government of to-day could not do better than to have this lecture reprinted and widely circulated among the class for whom it was chiefly intended.

Such a man as Dr. Robb would of course naturally understand the intimate relationship between the nature of soils and that of the rocks from which they are derived. His interest in geology had, moreover, already been aroused by his European tour, the fruits of which were before him, and no doubt employed in the illustration of his daily lectures. We may be sure, therefore, that it was with no indifferent eye that he scanned the results of the geological survey begun by Dr. Gesner in 1837, and continued during the four following years.

In the commencement of this sketch it was stated that Dr. Robb represents the second period in the history of scientific progress in New Brunswick. Strictly speaking, he and Dr. Gesner were contemporaries, but the first published observations of Dr. Robb, of a geological nature, are subsequent to those of Dr. Gesner, and are largely in the direction of criticism of the latter,—criticisms, however, based on his own personal observations and evidently having no other object than that of reaching more reliable conclusions. These criticisms are mostly contained in the report of Prof. J. W. F. Johnston on the Agricultural Capabilities of New Brunswick. Dr. Robb here especially objects to the enthusiastic and in many instances grossly exaggerated

statements of Dr. Gesner, relative to the occurrence of coal, and shows, by reference to all known outcrops, that the coal field of New Brunswick, instead of being one of the largest discovered on the globe, as stated by Gesner, was really small as compared with those of Illinois and Pennsylvania, and that the coal supply, instead of being "inexhaustible" and "of the highest importance not only to New Brunswick but to Great Britain and the United States," was really very small, the only workable seam known, and that of limited extent (the Grand Lake seam), not exceeding eighteen or twenty inches.

Another point in which Dr. Robb took issue with Dr. Gesner, of less economic significance, but still involving important consequences, was that of the true stratigraphical position of the red saliferous and gypsiferous rocks which cover such large areas in southern and some parts of northern New Brunswick. These, on account of their lithological resemblances to the rocks of the New Red Sandstone formation of England, with which he was familiar, were asserted by Dr. Gesner to be newer than the Coal formation, whereas Dr. Robb, following the view of Sir Charles Lyell, maintained, and correctly, that the greater part of them are really older than the coal measures.

But the most important contribution in this direction made by Dr. Robb is that of a Geological Map, contributed to Prof. Johnston's Report, in which, taking Dr. Gesner's incomplete maps as a basis, but modifying them as influenced by his own observations, as well as by those of Jackson, Logan and Lyell, he makes a distinct advance in the representation of the geological structure of the Province. With characteristic modesty, however, he observes that the map, made at Prof. Johnston's request, is unsatisfactory to himself, and is offered with very great diffidence.

In a sketch of the scientific work of Dr. Gesner, prepared by Dr. G. F. Matthew, and published in a Bulletin of this Society (No. XV, 1897), a very full discussion of the former's view is given, together with a representation of his map reduced from the map in the hands of the Natural History Society of New Brunswick, showing the result of his first three years' survey, and the more complete one in the possession of the Crown Lands Department at Fredericton, which shows also the work of his fourth year. Unfortunately we are without any record of Dr. Robb's observations and conclusions, excepting the very brief observations embraced in the letter to Prof. Johnston accompanying his own map. We are therefore limited to a

mere statement of the differences presented by the latter, as compared with the earlier map of Gesner, on which it is avowedly based.

The first feature to attract attention in such comparison is the larger area embraced in the map of Dr. Robb, the latter including the whole Province, while that of Gesner did not extend, except along the St. John river, north of a line connecting Woodstock and Chatham. Gesner's map, however, represents the results of his first four season's work only, while in the following year he made explorations of the northern counties sufficient to indicate their general character, and it is upon these, no doubt, that the completion of the work by Dr. Robb is based.

In his representation of the distribution of the granites which are so conspicuous a feature in the geology of New Brunswick, Dr. Robb's map—at least as regards the southern part of the Province—is less fortunate than that of Dr. Gesner, the more recent explorations embodied in the maps of the Geological Survey showing, especially in Charlotte County and Western Kings, a much closer approximation to the outlines as given by the latter than to those of the former. Gesner also indicates the existence of an axis of such rock extending from the Kennebecasis River, near Hampton, to Eastern Albert, which in the map of Dr. Robb is represented by a corresponding band of "Trap, Syenite, Felspar Rock and Porphyry." As a matter of fact, this ridge includes but little true granite.

The northern granite belt, represented in Gesner's map only between the St. Croix River and the St. John, in that of Dr. Robb is extended across the Province to Bathurst. The granitic area of the Serpentine is also indicated.

The including of so many different rocks under a common colour, irrespective of age or origin, as in the case of the Trap, etc., referred to above, is, in the maps of both authors under review, an unfortunate feature, but is far more conspicuous in that of Dr. Robb than in that of his predecessor, the former being in almost all parts, not occupied by the coal-formation or red sandstones, blotched with small patches represented as occupied by one or other of these rocks, and which include intrusives of every age from the Laurentian to the Trias.

As regards the earlier Palæozoic rocks, the two maps differ widely, the Cambrian system being made, in that of Dr. Robb, to include large portions of Charlotte and Kings Counties, which in that of Dr. Gesner are represented as granitic or trappean, while the great band of slates and quartzites north of the York County granites, and includ-

ing the area about Woodstock, represented by Gesner simply as clay slate or argillites, and differently marked from that of the similar belt south of the granite, is by Robb, and correctly, made of the same age as the latter. It is probable that in referring both of these great belts, which are more or less metalliferous, to the Cambrian system, Gesner and Robb were, upon the whole, more correct than the officers of the Geological Survey so many years later.

In Gesner's map a considerable belt of rock skirting the southern seaboard from Passamaquoddy Bay to Chignecto Bay, and now known to be Pre-Cambrian (Laurentian and Huronian), is referred to the Lower Silurian, or its supposed equivalent, the Graywacke System. This, undoubtedly the oldest group of rocks in the Province, and a part of the Acadian protaxis, is by Robb made still younger, or Upper Silurian, possibly through the knowledge of the occurrence of Upper Silurian shells in some of the areas, such as Passamaquoddy Bay, where they are to some extent associated with and overlie the beds of the older system; or, the fact that such Upper Silurian rocks had been shown by Jackson to occupy large areas along the coast of Maine, rendered it probable that the apparent extension of these in New Brunswick should be referable to the same horizon. The Upper Silurian rocks of Northern New Brunswick, not indicated in the incomplete map of Dr. Gesner, are by Dr. Robb clearly distinguished, the lines representing its southern margin showing a somewhat close approximation to their true position as determined by later investigation. On the north the border is made to exclude Temiscouata Lake, of which the greater part is really bordered by Silurian strata.

In this connection the following extract from a letter of Sir Wm. Dawson to Mr. S. W. Kain, in answer to certain enquiries of the latter, will be read with interest:

As stated in *Acadian Geology*, p. 502, the first fossil plant seen by me from the Devonian of southern New Brunswick was a Calamite (*C. radiatus* Brongt. *C. transitionis* Goept.), afterward illustrated by many specimens from the vicinity of St. John. This specimen Dr. Robb brought to Montreal, I think, at the time of the meeting of the American Association here in 1857. At the time these rocks near St. John were supposed to be Lower Silurian, and the Calamite showed that there must be newer beds there, though it was a species not found in the coal formation. I suggested at the time to Dr. Robb that on his return he should endeavour to ascertain if other fossil plants were present, and what portion of the slates and sandstone rocks near St. John contained them. This he proposed to do, but did not live to carry out his intentions, and the work fell into the hands of Messrs. Matthew and Hartt, by whom it was so successfully carried out. I did not know if Dr. Robb had any conference with

these gentlemen on the matter; but after his death I know I encouraged them to collect, though I had no idea of the rich results that were to reward their researches, and especially those of Mr. Matthew.

Sir William goes on to say: "I regarded Dr. Robb as an accomplished geologist, though I often regretted that the pressure of educational and other work, and perhaps his own quiet and retiring disposition, prevented him from cultivating more extensively the field for original research presented to him in New Brunswick."

In this connection it is gratifying to know that one of the largest and most abundant of the fossil plants found in the Fern Ledges at Carleton is a *Cordaite*, bearing the specific designation of *C. Robbii*.

No Devonian rocks, as such, are distinguished in the map of Dr. Robb, those of the vicinity of St. John and Lepreau being included in the supposed Upper Silurian area, while those of Passamaquoddy Bay (St. Andrews' peninsula) are, not unnaturally, associated with the red rocks of Kings and Westmorland and Albert, under the lithological designation of "Red Sandstones," etc. These, as already stated, were by Gesner regarded as newer than the coal formation, while by Robb they were looked upon as being beneath the latter, and "of the age of the mountain limestone, or perhaps of the Devonian strata. As it is now known that these "red sandstones," etc., include not only the equivalents of the mountain limestone and other lower carboniferous strata, but the Devonian plant-bearing beds of Perry, Maine, and those which, on the Bay Chaleur, hold remains of *Coscosteus*, *Pterichthys*, and other fishes of the old red sandstone type, it will be seen that Dr. Robb's anticipations in this respect have been fully confirmed. It is to be noticed, also, that the area assigned to these red rocks in Albert and Westmorland Counties is greatly reduced in the map of Dr. Robb, the districts thus represented being referred, though not with strict accuracy as to limits, to the coal formation.

The Lower Carboniferous outlier of the Tobique Valley is correctly indicated, though not definitely referred to this formation.

With the exception above referred to, the tracts assigned to the coal formation, as outlined by Dr. Robb, agree with those of Dr. Gesner and with the results of later observations. In their estimate, however, of the productive capacity of the coal field, the views of the two authors differ widely, those of Dr. Robb being far more moderate, and, as now believed, much nearer the truth.

It has been already stated that the red sandstones, etc., regarded by Dr. Gesner as "New Red," were by Dr. Robb referred to a Lower

Carboniferous or Devonian horizon. The existence of true Triassic beds, occupying as they do extremely limited areas on the coast, and not readily distinguished from associated Carboniferous strata, do not appear to have been known to him. The accompanying traps, with those of Grand Manan, are not, in the maps of either author, distinguished from other eruptives or assigned to any definite period.

Upon the whole, the map of Dr. Robb, though confessedly based upon that of Dr. Gesner, shows the results of extensive original observation and reflection, and though in some instances, as stated, less correct in its representations than the former, shows a decided advance in the direction of sound views and more exact limitations. It was the first published geological map of New Brunswick, and, so far as this Province was concerned, was reproduced, without essential change, in that accompanying the first edition of the "Acadian Geology" of Sir William Dawson.

Another, among the comparatively few instances in which Dr. Robb gave public expression to his views upon geological subjects, was in connection with the celebrated controversy as to the nature and origin of the mineral *Albertite*. The question having arisen as to whether this was to be regarded as coal or asphalt, or a variety of either, a question involving, in connection with the then existing mining laws, the ownership of a property of enormous value, experts were brought forward, in several instances from considerable distances, the consideration of whose testimony made the trial a very lengthy one, at the same time that it tended to extend very greatly the knowledge of the class of substances of which *Albertite* may be regarded as the type. On the one hand Dr. Chas. T. Jackson, of Boston, and his associates, maintained that the mineral was a true coal, while Prof. Richard C. Taylor, in association with Dr. Robb, asserted that it was either asphalt or a variety of asphalt. The published deposition of Prof. Taylor, on behalf of Dr. Gesner, the claimant, contains many interesting observations on the geology of the vicinity of Hillsborough, as well as regards the peculiarities of the *Albertite* deposit, all of which he states were made in company with Dr. Robb.

The final decision of the jury hinged, by the direction of the judge, simply upon the question whether *Albertite* was a *mineral* or not, and, there being no real doubt upon this point, was given in favor of the defendants. It is, however, interesting to observe that, as regards the real nature and origin of the material, the views of Taylor and

Robb have in every particular been confirmed by the results of later investigation. The very recent discovery of Albertite veins penetrating the pure white gypsum or alabaster deposits of Hillsborough, is a singular commentary upon the views that the mineral in question is a *coal*.

It has been said that Dr. Robb's published observations are but few. But important as these are, we should form a very inadequate idea of the man and of his work if we restricted our estimate to these only. In reality his researches took many different directions, and, had his manuscript notes, after his death, not unfortunately gone astray, their publication would have been a source of much valuable information. This is especially true of researches made by him in regard to the early occupation of the country by the French, as well as regards the language and traditions of the still earlier Indian tribes.

In referring to these manuscripts Rev. W. O. Raymond, in whose keeping they now are, says in a letter to the writer :

After the attempt by Peter Fisher in 1825, of Alex. Wedderburn in 1836 Moses Perley in 1841, Calvin Hatheway in 1846, and Abraham Gesner in 1847, to give something of the history of the Province, Dr. Robb seems to have formed the design of writing a history of a more elaborate kind, embracing the Acadian period as well as the history of the Pre-Loyalist English settlements and the later history. To this end he compiled, from time to time, such materials as he could glean from Champlain, Charlevoix and other French writers, and also from certain documentary materials in Halifax and Massachusetts. The manuscript books in which the result of his researches are to be found are interesting. They contain many corrections, interliniations, and on the pages opposite to the ink-written narrative, many supplementary notes in pencil, and observations which go to show that the work was regarded by him as of a tentative nature.

There is also among the Robb papers a lot of Indian words with observations on the same, and rude attempts at classification. In nearly all the papers one is struck with the industry that Dr. Robb displayed, and although he did not live to complete his historical work sufficiently for publication, he was following the right path, and really, with the time and opportunities afforded, he accomplished a good deal. Modern students of provincial history have fuller and better sources of information than had he, and I do not know that his manuscript contains much that is *original*, which is to be regretted.

The museum which Dr. Robb founded in connection with King's College (now the University of New Brunswick) is well worthy of notice. It has been already said that during his European tour Dr. Robb embraced every opportunity to make collections of minerals, rocks, fossils and plants. From the nature of the collections now in

the college, it is quite evident that the larger part of this material was brought with him across the Atlantic, though it may possibly have been supplemented by orders subsequently given. In particular may be mentioned a collection of European fossils, several hundred in number, all duly named and classified, similar collections of minerals and rocks, partly from the continent and partly from Scotland, examples of slags and furnace products, models of iron and soda furnaces, specimens of moulds and utensils employed in the manufacture of china and porcelain, Sopwith's geological models, glass models of crystals, etc., etc. In the botanical department, besides numerous flowering plants, are many specimens of mosses, lichens, ferns and seaweeds, also identified and classified.

Dr. G. F. Matthew tells me that he remembers Dr. Robb very well, and when the former began to study mineralogy he received much assistance and advice from Dr. Robb. This could only be on the rare occasions when Dr. Matthew visited Fredericton and had time to go up to the college. Dr. Robb took great pleasure in showing and explaining the collections in the museum, among which were specimens from the copper mines of Lake Superior, including an example of quartz crystals containing native copper, which Dr. Robb exhibited as a remarkable inclusion, not easily explained. It was from him that Dr. Matthew learned that Rogers had found "*Lingulae*" in the slates at St. John, and that there were obscure remains of plants at the Barrack Shore in St. John city.

A somewhat curious specimen is that of a Malay child, which is partly double, having only one face, but four arms and four legs, obtained from a sea-captain, and which so interested its possessor that he sent all the way to Paris for standard works on the subject of monstrosities. It is accompanied by a number of carefully executed drawings, which indicate not only his interest in the subject, but also his skill in the use of pencil and brush. This latter faculty is also evidenced by the large number of pictures, some in pencil, but many in water colours or oils, and embracing views of volcanoes, coral atolls, coal plants, fossil fishes, etc., besides numerous geological sections, which are still in the possession of the university, and which were evidently made by Dr. Robb for the illustration of his lectures.

A circumstance which must have greatly embarrassed him, as it has his successor, was the want of access to libraries or books of reference. This want he endeavoured to remove, as far as in his power, by additions to the college library, and a review of the works

of a scientific character possessed by the latter at the time of Dr. Robb's decease, shows with what judgment his selections were made. The extent of this collection would have been much larger had it not been for the unfortunate shipwreck, on Sable Island, of a steamer containing a large number of books, among them the publications of the Ray Society, destined for him, besides a large quantity of furniture, crockery, etc. He must also have had an extended correspondence, one proof of which is of personal interest to the writer. Soon after assuming the duties laid down by Dr. Robb, he had occasion to make a detailed inventory of the apparatus and specimens in the chemical laboratory and museum of the college, and quite early in the search was at once surprised and gratified by finding a considerable number of packages, the written labels of which were recognized as being in the handwriting of the writer's father, the late Prof. J. W. Bailey, of West Point, N. Y. They contained samples of the so-called *Fossil Infusoria*, and, as the gentleman last referred to was at that time the principal authority in America on these microscopic organisms, he had evidently been written to by Dr. Robb that the latter might thereby be the better able to identify any similar forms which he might meet with here.

Dr. Robb's choice of apparatus, like that of books, was most judicious. Nothing but the best would satisfy him, and his chemical laboratory, though small, was a model of convenient arrangement, and, for the time and place, of ample equipment. The necessities of the case made him also his own mechanic, and in one of his letters he refers to his having been required to polish and repair a lot of instruments injured in, but recovered from, the Sable Island disaster, and which he describes as a "shocking wreck." His laboratory was fully supplied with carpenter's tools, and there is no doubt that he knew how to use them. He was a good analyst, and many specimens of ores now in the university collection are accompanied by labels bearing the results of his quantitative determinations.

His association with the Fredericton Athenæum has already been referred to. In this connection he prepared and published an almanac, of which he says, in a letter to his mother, "I can tell you it cost me a good deal of work." It was issued in 1849, is a volume of 142 pages, of which the object, as avowed on the preface, was neither profit nor remuneration, but the "furnishing of a compendium of information, useful for the time and place." He adds, "In a colony like this, where as yet food for the mind is but scantily supplied, care ought to

be taken that the quality of it is good, and that the poor settler, who often has no other library than his Bible and his almanac, should find in the latter something more nourishing than the chaff of Astrology, Alchemy and Divination." With this purpose in view, there is given a vast quantity of information, including, besides the usual monthly tables and accompanying tidal and lunar changes, a most interesting synopsis of provincial chronology, revised lists of provincial latitudes and longitudes, a register of the executive and legislative departments of the government, the judicial department, the roll of barristers and attorneys, a list of clergy of all denominations, banks, public institutions, etc., etc. It contained, also, tables of exports and imports, rates of duties, abstracts of revenue returns, tables of temperature, times of the opening and closing of navigation for successive years, tables of roads and distances in New Brunswick, and rules for the calculation of interest. It was, in fact, a sort of universal gazetteer, which, in the breadth and accuracy of its information, would compare favorably with much more recent and more pretentious volumes.

It will appear, from what has now been stated, that the life of Dr. Robb, though it has left but few records in the form of published contributions to knowledge, was a very busy one, and exerted a very extended influence upon the progress of intellectual and scientific development in New Brunswick. In estimating the results of his labours we must, as with Gesner, bear in mind the fact that science in that day was, in many of its branches, and especially in geology, in its early infancy. Dr. Robb's isolated position, as has been said, also made it difficult for him to know what was being done in the way of investigation elsewhere. And, finally, the facilities for travel in the Province were far inferior to such as exist at present. Of railways there was only one, that of St. Andrews, and, speaking of the proposed construction of another, he remarks, "There is great talk of railways at present (this was in 1847), but I am doubtful. Unless there be a federal union of the provinces, I doubt whether the great line from Halifax to Quebec would pay."

Dr. Robb was a member, and in 1849 and succeeding years President, of the Fredericton Society of St. Andrews, as also member of the Church Society of New Brunswick, and in both capacities is remembered as a zealous and energetic worker.

The removal at an early age of a man of such great and varied capacity, occupying so many different positions in the community, and at the same time ever ready to give advice, professional or otherwise,

to those who needed it, irrespective of their rank in society, could hardly fail to be deeply and universally deplored. That it was so is sufficiently indicated from the following announcement of his death in the *Fredericton Reporter* of April, 1861 :

The sudden death of Dr. Robb, occasioned by a violent pulmonary attack, which took place on Tuesday afternoon, is an event which, while it will awaken feelings of the deepest regret in this community, will also be regarded as a public loss all over the Province. His earnest and constant devotion to the duties of his profession, his zealous attachment to the agricultural interests of the country, his high qualifications as a scholar, and his kind and affable manners as a man, have for many years been recognized and duly acknowledged by all who either had the pleasure of his personal acquaintance or who knew him only through the medium of the familiar, yet learned and useful essays with which he so frequently favored the public. It is, however, now that he has gone, that the full impression of the loss we have sustained becomes painfully evident. Every one bewails his loss; and every one, in this city especially, has good reason for unaffected sorrow."

Any one of whom the above could be written, as voicing the feeling of the community in which he lived and labored, needs no other eulogy

The following is a list of the published writings of Dr. Robb derived partly from Bulletin 127 (1896) of the U. S. A. Geological Survey, and in part from other sources :

1. Remarks upon certain geological features of the River St. John, in New Brunswick, with an account of the Falls upwards from the sea, which occur near its embouchure in the Bay of Fundy.
Brit. Assoc. Rep., Vol. 10, Trans. of Sections pp. 115-118 (1841).
Abs. Amer. Journ. of Science, Vol. 41. Pp. 55-56. 1841.
2. Enceenia oration. King's College, Fredericton. Pp. 16.
3. Report on the Agricultural Capabilities of the Province of New Brunswick. By Prof. J. W. F. Johnston. Fredericton, 1850. [This work contains a letter by Dr. Robb on the geological structure of the Province, with an accompanying geological map.]
4. Report of the New Brunswick Society for the Encouragement of Agriculture, Home Manufactures and Commerce. Fredericton, 1851.
5. Deposition of Richard C. Taylor, respecting the Asphaltum mine at Hillsborough, Albert County, N. B. Philadelphia, 1851. [This contains a joint report on the same subject by Messrs. Taylor and Robb.]
6. Notice of Observations on Drift Striæ in New Brunswick. Am. Assoc. Adv. Sci. Proc. Vol. 4, pp. 349-351. 1851.